

A synopsis of the American species of *Ctenium*.

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WITH PLATE XXIX.

Artificial key to the species.

1. Spikes 1 or 2 2
1. Spikes 3 to 6, awns of the third and fourth glumes three times as long as the glumes themselves *C. polystachyum*.
2. Awn of the fourth glume nearly 2 inches, recurved. *C. cirrhosum*.
2. Awn of the fourth glume less than 1 inch, straight or simply divergent 3
3. Nerves of the second glume strongly tuberculate-roughened 4
3. Nerves simply scabrous *C. Chapadense*.
4. Awn of the fourth glume twice exceeding it 5
4. Awn about equaling or shorter than the fourth glume 6
5. Fifth glume twice as long as its awn; spike 4 to 5 inches *C. planifolium*.
5. Fifth glume equaling its awn; spikes 2 inches *C. glandulosum*.
6. Awn of the fourth glume about equaling the glume itself 7
6. Awn of the fourth glume less than half as long as the glume itself *C. brachystachyum*.
7. Spike 1 ½ inch long, awns slender *C. brevispicatum*.
7. Spike 2 ½ to 5 inches long, awns stout *C. Carolinianum*.

1. *Spikes three to six.*

CTENIUM POLYSTACHYUM Balansa Bull. Soc. Bot. de France 32: 244. 1885.

Culms cespitose, two to four feet high; leaves pubescent; spikes three to six, digitate-paniculate; spikelets 4-flowered; third and fourth glumes 3-nerved, long-ciliate on the lateral nerves, the middle nerve prolonged into a scabrous awn three or more times the length of the glume; fifth glume keeled, ciliate only along the margin, 3-nerved.

Paraguay.

2. *Spikes one or two; awn of the fourth glume nearly two inches, recurved.*

CTENIUM CIRRHOSUM Kth. Rev. Gram. 445. *pl.* 136.

Campulosus cirrhosus Nees Agrost. Bras. 416.

Culms slender, cespitose, two to four feet high; leaves scabrous; spike one; first empty glume nearly as long as the spikelet; second empty glume much exceeding it; third glume with an awn twice as long as itself; fourth glume with a recurved awn nearly two inches long; fifth glume cuspidate or mucronate at the apex.

On high plains in southern Brazil.

3. *Spikes one or two; awn of the fourth glume one-half inch long or less.*

- a. *Nerves of the second glume scabrous, not glandular-tuberculate.*

CTENIUM CHAPADENSE Doell. in Mart. Flor. Bras. 2³: 73.

Campulosus Chapadensis Trin. Sp. Gram. *pl.* 303.

Culms slender, three feet high, basal leaves six to nine inches, those of the culm about four inches long, the uppermost shorter; spike one, terminal; first glume a little shorter than the spikelet; second glume twice exceeding it; third and fourth glumes ciliate, pilose at the base, with awns four or five times longer than themselves; fifth glume ciliate, naked at the base, longer than the third and fourth glume, with an awn a little longer than itself.

Florida to Argentina.

- b. *Nerves of the second glume strongly glandular-tuberculate.*

Ctenium glandulosum Scribn. & Smith, sp. nov.—*Plate XXIX.*

Culmi 14–18 pollices longi, simplices, erecti, teretes, striati, scabri praesertim sub nodis, apice distincte striati pubescentes cum annulo hirsuto basi inflorescentiae, nodis glabris; vaginæ striatae internodis breviores; laminæ planæ, striatae, glabræ, aut supra minute scabræ, lineares, 4–12 pollices longæ, 1–1.5 lineas latæ, apicem versus filiformes, summæ breviores, involutæ, setacæ; spica unica pectinata, saepe 2 pollices longa, recta aut falcata subspiralis, rachis plana scabra; spiculæ patulæ biseriatæ dense imbricatæ; gluma vacua

prima obliqua linealis, basi tuberculato-crassa, 1-nervis, acuta interdum dentata; gluma vacua secunda 3 lineas longa, obliqua, lanceolata, trinervis, nervo medio in aristam scabram excurrente ex quarta basali glumæ, pulvino in axilla aristæ prominente, arista glumæ subaequali, nervis lateralibus glanduloso-tuberculatis per inferiorem bessem, scabris superne; gluma tertia vacua lanceolata acuta, sesquilinealis, arista duplo longiore, tenui, scabra, excurrente ex tertia summa glumæ, trinervis, marginibus albis ciliis cristatis basi dense barbata; gluma quarta cum palea neutra duas lineas excedens, lanceolata acuta, trinervata, marginibus medio pilis albis cristatis, semilinealis, arista dorso 4 lineas longa sub apice oriente; gluma quinta florens, duas lineas longa, arista 3 lineas longa, palea subaequilonga, apice bidentata 2-nervis, ciliatis; gluma sexta sterilis, glabra, brevipedicellata subapice mucronata sesquilinealis; gluma septima rudimentum, linearis, semilinealis, pedicella tenuissima.

This species is founded on no. 2814 Nelson, collected between Niltepec and Zanatepec, Oaxaca, July 15, 1895, at an altitude of 400 feet. It has the habit of the Brazilian *C. brevispicatum* nom. nov., but the details of the spikelets do not agree.

***Ctenium brevispicatum*, nom. nov.**

Campulosus brachystachyus Trin. Sp. Gram. pl. 302, not Nees.

Culms cespitose, one to two feet high, distinctly pubescent above, glabrous at the nodes; leaves about a foot long, smooth and glabrous except on the slightly hispid margins; spikes one or two, digitate, from one and one-half to two inches long or longer; first empty glume one-fourth the length of the spikelet; second empty glume as long as the spikelet; third and fourth glumes pilose at the base and along the margins above, awned from below the apex, the awns about equaling the glumes; fifth glume densely villous on the margins above, the awn usually a little shorter than the glume.

Brazil.

CTENIUM BRACHYSTACHYUM Kth. Rev. Gram. 447. pl. 137.

Campulosus brachystachyus Nees Agrost. Bras. 417, not Trin. Spec. Gram. pl. 302.

Culms cespitose, very slender, glabrous, one and one-fourth to two feet high; culm leaves rigid, scabrous on both sides, four to five inches long; spike terminal, one and one-fourth to one and one half inch long; spikelets 5-flowered; first empty glume very much shorter than the spikelet; the second

nearly equaling it, third and fourth glumes densely clothed along the margins with long, strict, white hairs, scabrous towards the apex, the awns one-half as long as the glumes; fifth glume emarginate at the apex and mucronate-awned, clothed with long strict white hairs at the margin, its awn very short straight and scabrous.

Brazil.

CTENIUM PLANIFOLIUM Kth. Enum. Pl. 1: 275.

Campulosus planifolius Presl. Rel. Haenk. 287.

Culms two to two and one-half feet high, scabrous, especially below the nodes; leaves scabrous on both sides; spike one, more than four inches long; first empty glume very much shorter than the spikelet; second empty glume nearly equaling the spikelet, 2-nerved, hirsute; third and fourth glumes pilose on the back and margins, the third with a straight awn as long as itself; the fourth with an awn twice as long as itself; fifth glume a little longer than the lower ones, hirsute on the back, the margins densely white-pilose, terminated with a straight scabrous awn half as long as itself.

Mexico.

CTENIUM CAROLINIANUM Panz. in Denkschr. Akad. Muench. 1813: 311. 1814.

Ctenium Americanum Spreng. Syst. 1: 274. 1825.

Aegilops aromatica Walt. Flor. Car. 249.

Campulosus aromaticus Scribn. Mem. Torr. Bot. Club 5: 45.

Culms one and one-half to four and one-half feet high; leaves six to fourteen inches long, glabrous; spikes one or two, one and one-half to six inches long; first empty glume one-third as long as the second, which is about as long as the spikelet; third glume pilose at the base and along the margins, awned below the apex with a stout spreading awn shorter than the glume; fourth glume one-third longer than the third glume, pilose at the base and tufted-ciliate on the margin about the middle, awned below the bifid apex with a stout divergent awn about as long as the glume; fifth glume about as long as the fourth, similar to it, except for the much shorter and less spreading awn.

North Carolina along the coast to Alabama.

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EXPLANATION OF PLATE XXIX.

Ctenium glandulosum Scribn. & Smith.—*a*, *e*, *e*, empty glumes.—*b*, florets: *b*¹, third glume; *b*², fourth glume; *b*³, fifth glume.—*d*. Fifth glume and palea.—*c*. Sterile rudiments.